A RADIATION SERVICES WA

11111

Management through understanding

Missing Radioactive Source Incident in WA:

- Radiological Council / Radiation Health Unit
- Department of Fire & Emergency Services (DFES)
- Radiation Services WA



DFES

- Station Officer
- A/Hazmat Officer
 - Review of Radiation SOPs
 - Radiological input DFES
 - ARPANSA GSR 3
- Conflict of Interest Management Plan

Disclaimer

- Incident Management Team
- Privileged Information
 - DFES Incident Controller
 - Radiation Health Unit
- FOI Department of Health
- Rio Tinto Frank Harris
- Radiation Service Provider

What is a Fixed Radiation Gauge



Missing source

- Source in use from 2020
- Incident noted as December 2022
- Left site on 10 January
- Arrived Perth 16 January
- Missing source reported 25 January
- Source located 1 February

Search area for tiny radioactive capsule







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Media Coverage & Commentry

Radiation Services WA Lauren Steen, General Manager

Chief Health Officer / Radiological Council Chairman

Prime Minister

WA Premier & various Ministers

Incident Management

- State Hazard Plans
- HMA / Combat & Support Agencies
- AIIMS
 - Incident Action Plan (IAP)
 - Objectives, Strategies, Tactics
- HEAT / CBRTG
- Incident Support Group (ISG)





Government of Western Australia State Emergency Management Committee

STATE HAZARD PLAN

Hazardous materials emergencies (HAZMAT)

Note: This document contains information relating to the arrangements for managing emergencies resulting from the actual or impending spillage, release or escape of a chemical, radiological, or other substance that is capable of causing loss of life, injury to a person or damage to the health of a person, property or the environment. It must be read in conjunction with the State Emergency Management Plan, which contains the generic emergency management arrangements.

Responsible Agency:Department of Fire and Emergency ServicesApproved by:State Emergency Management CommitteeResolution Number:17/2021Version Number:V01.03



PLAN







Incident Management - AIIMS

Australasian Inter-service Incident Management System

AIIMS is based on five key principles:

- Management by objectives
- Functional management
- Span of control
- Flexibility
- Unity of command

Incident Management - AIIMS

Incident Management Team (IMT)

Incident Action Plan (IAP)

Objectives, Strategies & Tactics

Incident Management - AIIMS

Hazmat Emergency Advisory Team (HEAT)

Chemical, Biological, Radiological Technical Group (CBRTG)

Incident Support Group (ISG)

Radiological Council Response

- Safety Bulletin
- Media Releases
- Fact Sheets

Government of Western Australia RADIOLOGICAL COUNCIL

RADIATION SAFETY ACT

URGENT SAFETY BULLETIN

RTI DG-01, DG-02L & DG-02T Model Industrial Gauges

Following one incident and one near miss, the Radiological Council is advisi Time Instruments (RTI) industrial gauges of the same model as that in image labelled as DG-01, DG-02L or DG-02T, must either be immediately removed mitigation factors applied as per below.

Incident Description

An incident occurred where the top lid of an RTI gauge of the aforementic separated from the gauge housing and the internal block has fallen from h gauges weigh approximately 25 kg, this possesses a significant risk for any in and in the vicinity of the gauge.

A subsequent enquiry identified an additional gauge exhibiting a similar However, in this instance the gauge housing has begun to separate from the ba 2).

In both instances the screws affixing the gauge housing to the top lid and/or either become loose or already failed (image 3).

Directive

Following the incident and near miss, while the Radiological Council investigat these gauges, all RTI gauges of the models in question as shown *must* be service as they pose an unacceptable risk.

In instances where the gauge is unable to be removed from service, action n mitigate the potential risk of the gauge separating and falling.

Confirmation of any actions taken *must* be provided to the Radiological Council 15th February 2023, including photographic evidence and justification of strategies used.



structural failure

10 February 2023



Queries: radiation.healt www.radiologi

Government of Western Australia

FACT SHEET

Information for community members regarding safety of missing radiological capsule

This fact sheet addresses some of the commonly asked questions regarding the safety of the missing radioactive capsule and any impacts it may have had on the community or the environment before it was found and recovered.

Are there any communities located near where the device was found?

No. The capsule was found 74km south of Newman along the Great Northern Highway. There are no communities along this stretch of road. The nearest parking bays are 23 km north and 8 km south of the location where the capsule was found.

Was the capsule damaged?

No, the capsule was recovered intact and there has been no damage to the outer surface. These capsules are designed to be very tough. Tests have been done to confirm that there was no damage to the capsule.



Figure 1. The capsule onsite before it was recovered

Radiological Council Response

- Cease use remove from installed location
- Advise Council within 5 days of actions taken and provide photographs of devices
- RTI issued "Audit Procedure" / Remediation Actions
- Regulatory Investigation:
 - Immediate safety concerns
 - Public expectations
 - Learnings / prevention of recurrence
 - Prosecutions

Controls





Control Measures

- Source Encapsulation
- Device Design Assessment (Regulator Approval)
- Systems of Work (RMP, SOPs)
- Training; Induction; Supervision
- Role of the Radiological Council
- Compliance Testing

Source Encapsulation

ARPANSA Transport Code - RPS C-2

Special Form Certification

- Impact test
- Percussion test
- Bending test
- Heat test



Controls – Transport Code (RPS C2)

After testing, the source capsule must remain within the source housing and the dose rate must not increase by more than 20%. Tests include:

- Water spray test
- Free drop test (9m)
- Stacking test
- Penetration test

Controls – Transport Code (RPS C2)

613. The package shall be capable of withstanding the effects of any acceleration, vibration or vibration resonance that may arise under routine conditions of transport without any deterioration in the effectiveness of the closing devices on the various receptacles or in the integrity of the package as a whole.

In particular, nuts, bolts and other securing devices shall be so designed as to prevent them from becoming loose or being released unintentionally, even after repeated use.

Controls – Gauges Code (RPS 13)

After testing, the source capsule must remain within the source housing and the dose rate must not increase by more than 20%. Tests include:

- Free drop (>9m)
- Compression (24h, 5x mass or 1.3T/m²)
- Thermal (>30m, 800 deg C)
- Corrosion/Vibration (AS 60068 Environmental Tests)
- Shutter/Source control (Manual 500 cycles, Automated 5000 cycles)

Real Time Instruments (RTI) -DG-01

• 70 RTI devices in WA



Design Approval

•DG 01 •DG 02



Compliance Testing

- Medical
- Industrial
 - Fixed Gauges only (2001)
 - Licensing
 - Updating & expanding the CT program (2023)

Regulation in WA

1 of 36



REPORT OF THE

RADIOLOGICAL COUNCIL

for the year ended

31 December 2022



Regulation in WA

2022 Annual Report



9 officers from the Radiation Health Unit authorised under the Radiation Safety Act to carry out the services of the Radiological Council



3 clerical officers from the Environmental Health Directorate provide administrative support No difference to 2017 36% reduction from 2016 (14)



General

Statistics – WA Fixed Gauges



Statistics – WA Fixed Gauges



Lessons being learned

The gauge which the radioactive capsule fe from use in WA shortly after it was lost.

Dr Robertson said a review into "specific, sr aspects" of the equipment was still underw would be considered when ready.

No penalties following 'comprehensive investigation'

Now, WA's chief health officer and chair of the state's Radiological Council has confirmed a "comprehensive investigation" has been completed and a report handed to the health minister.





WA Chief Health Officer Andrew Robertson said the cou of the act. (ABC News: Briana Shepherd)

The tiny capsule was held in a radiation gauge s Services WA)



11:59am



Great Northern Highway near



replice of the experile change have tipy it is payt to a watch (ADC Nows, Casen Us

Thank you...